Working with Local, State and Federal Partners to Address Health Education Needs of Hurricane Katrina Evacuees in Houston: A CDC Case Study

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ABSTRACT

For health educators to successfully meet the challenges of responding to public health emergencies, it is important to establish and understand the role of collaborations with local, state and federal partners in identifying potential public health issues and to develop theory-based models or strategies to address these issues before, during and after an event. This paper presents a case study examining the health education and communication response to Hurricane Katrina in Houston, Texas. CDC's Health Education and Communication Teams and the Harris County Public Health and Environmental Services Division of Health Education worked with identified populations, environmental specialists, epidemiologists and other key partners to identify health education needs and develop appropriate messages and then developed and implemented a broad comprehensive health education and promotion plan. The paper discusses lessons learned and how health educators can use the model developed for this response to plan for future disasters and public health emergencies, including pandemic influenza.

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INTRODUCTION

On August 29, 2005, Hurricane Katrina, a category 4 storm, made landfall impacting the entire Gulf Coast of the United States forcing the evacuation of approximately 240,000 persons, mostly from Louisiana, to Houston, Texas. The Reliant Park complex in Houston became the central triage point for arriving evacuees. On August 31 approximately 24,000 evacuees, primarily from New Orleans, Louisiana, were sheltered at the Reliant Park complex, which included the Astrodome, Reliant Center and Reliant Arena. Evacuees were provided with bedding, regular meals and bathroom facilities.[1] An additional 2,800 evacuees were sheltered in downtown Houston at the George R. Brown Convention Center. Medical facilities were set up at both locations to provide initial emergency care to evacuees and serve as comprehensive outpatient clinics. Over 60,000 volunteers assisted in the recovery efforts.[2]

On September 4, at the request of the Harris County Public Health and Environmental Services (HCPHES), CDC deployed

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20 public health experts to Houston to do rapid needs assessments of the population displaced after Hurricane Katrina. The CDC team stationed in the Reliant Center included expertise in multiple areas, including epidemiology, infectious disease, environmental, mental health, and health education and communication. The team provided assistance to support functions of the local health department, including mental health, communication messaging, and outbreak investigations.

NOROVIRUS OUTBREAK

On September 2, 2005, prior to the arrival of the Houston CDC team, physicians and staff working in the medical clinic at Reliant Park noted a "a substantial number of adults and children with symptoms of acute gastroenteritis (defined as diarrhea and/or vomiting)."[3] Additional epidemiological assessments at the Reliant Park medical clinic indicated a Norovirus outbreak with a total of 1,169 persons reporting symptoms from September 2-12, 2005.[4] The Health Education and Communication team, using the data provided by the epidemiologists, worked with the environmental health team to investigate the outbreak, to identify areas of possible exposure, and to develop health education and communication materials to help control the outbreak.

Health educational materials and communication messages were developed to address the major areas where potential exposure and spread of the virus were possible. In addition, the messages were designed and tailored to reach specific audiences, including staff supporting the emergency operation response and evacuees in the Astrodome, Reliant Center and George R. Brown Convention Center. Messages and materials were distributed in a variety of forms (e.g., large banners, flyers, tip cards, table placards, shelter newsletters) and languages (i.e., English, Spanish, Creole).

Messages included information encouraging evacuees, volunteers, staff and first responders to wash their hands on a regular basis, particularly prior to mealtimes and after using the toilet, to maintain clean cots and sleeping areas by not storing food, notify staff to clean up any spills or vomit, and to throw away trash and dirty diapers. Bedding and toys that may have been contaminated were to be thrown away, and eliminate stuffed animals and other toys that could not be cleaned from day cares and child play areas. Those working in food preparation areas were educated to use proper glove protocols, and evacuees were educated on proper guidelines for washing contaminated clothes.

Child play areas and day care centers located on-site at Reliant Park were identified as areas with a high risk of exposure to the virus due to improper diaper changing procedures, the use of stuffed animals and inadequate cleaning procedures for all toys. To reduce exposure, day care staff were provided with educational materials on hand washing, proper ways to change and discard diapers and recommendations for cleaning and rotating toys. Support for operations at the Astrodome and Reliant Center was also provided by the Southern Baptist Convention Disaster Relief (www.namb.net), which was called in to provide day care services on-site at Reliant Park. This group, staffed by trained volunteers familiar with infection control procedures, was able to provide completely self sufficient day care facilities and activities that were age appropriate.

Although the messages were specifically developed to address the Norovirus outbreak at Reliant Park, the materials were developed so that they could easily be used in multiple locations for prevention to reduce the risk of future outbreaks at Reliant Park and in other shelter locations throughout the Southeast region. To reduce duplication of effort, various mechanisms were used to coordinate and collaborate with the City of Houston Health Department, the local Houston Chapter and National office of the American Red Cross, and the CDC Headquarters Emergency Communications System team, to ensure that consistent health messages were being provided to the evacuees and to maximize limited federal, state and local resources. To ensure that the messages remained unencumbered by multiple logos, a decision was made to remove all logos from the materials being produced during the time of the emergency response. All health-related materials were all produced in a similar color scheme to stimulate recognition by those encountering the messages. An initial assessment of the materials developed and distributed was conducted by the HCPHES to determine the effectiveness of the campaign and to identify different mechanisms for reaching people during public health emergencies.

COMPREHENSIVE COMMUNITY HEALTH EDUCATION PLAN

In addition to the efforts listed above, needs assessments were conducted to identify and prioritize locations at the Reliant Center, Astrodome, George R. Brown Convention Center and Red Cross Shelters where health education and communication messages were needed and where materials should be displayed. The needs assessment was based off a tool that was previously developed and tested by NACCHO in January 1997: Partnerships for Environmental Health Education: Performing a Community Needs Assessment at Hazardous Waste Sites. We adapted this document to assess the primary needs and concerns for the displaced persons located in the greater Houston area after Hurricane Katrina, and worked with key stakeholders, partner organizations and team members including communication and environmental scientists to translate what was found in the assessment and formulate key messages for dissemination. Resulting plans addressed multiple layers of the social ecological system (communities, families and individuals) to keep people healthy while living temporarily in the greater Houston area. The priorities from the assessment identified included violence, concerns about food preparation, lack of hygiene, sharing bathrooms, stalking, potential for airborne illnesses and children's health. For example, violence related messages were designed to reduce the potential for adverse health outcomes such as child maltreatment (e.g., shaken babies), intimate partner violence, sexual violence, stalking and youth violence that could occur due to the stress

of the crowded living conditions and other extenuating circumstances (e.g., potential loss of home, loved ones, etc.). Initially, rival gangs were located in the same building and messages were developed to encourage people to report any suspicious behavior to the safety officials who were on site or if persons felt unsafe; additional steps were taken to move rival gangs to different locations. To reduce the risk of foodborne illnesses, it was critical that all food was prepared and kept at recommended temperatures and that all volunteers were familiar with hand washing and glove protocol.

To address these issues, as well as other pubic health concerns (e.g., identification of possible patients with TB, concerns regarding pets) the comprehensive communication and education plan was divided into areas with specific target audiences. Educational materials were specifically designed, developed and targeted for specific populations, but provided the same consistent health messages primarily focused on hygiene and hand-washing to lower the transmission of acute gastroenteritis**.** Messages were developed for health providers, veterinarians, schools, shelters, parents and caregivers, public officials, volunteers, community, and faith based organizations. These messages were distributed through the health departments and their local partners, who displayed messages in appropriate areas. For example, messages related to hand-washing were displayed on banners placed over sinks and near cafeteria areas where food was prepared and consumed.

LESSONS LEARNED AND FUTURE RECOMMENDATIONS

Effective crisis and risk communication can help mitigate and prevent many of the expected individual and community behaviors that occur during a crisis, emergency, or disaster.[5] By developing an overall community health education and communication plan, health educators and communicators can provide educational materials and resources that are specifically designed, developed and targeted for specific populations yet are consistent in reinforcing key health messages for communities, families and individuals. Message mapping is one way to create clear, consistent public health messages that can be disseminated rapidly.[6,7] Although specific messages can be developed for particular audience (e.g., veterinarians, shelter populations, food and daycare volunteers) clear consistent key messages delivered to multiple audiences will minimize and limit the number of competing messages in a disaster situation. Materials for specific audiences can be distributed as necessary through various formats such as posters, table tents and fliers. Existing resources can also be used and a determination can be made on whether there are gaps in messaging. Additional materials can be developed as needed to meet the needs of the situation, and content areas can be modified using existing pre-event materials to address other populations or health concerns. The education and communication model that was used in Houston during Katrina can be easily modified to address infection control issues for public health outbreaks, an outbreak of pandemic flu, or other public health disaster and emergencies. Messages can vary based on the type of outbreak, or new messages may need to be developed for a specific issue. For example, materials can be developed for use in schools, shelters, colleges and universities (health centers and students), parents and caregivers, public officials, volunteers, community and faith based organizations, and health departments.

If possible, education and communication materials and pre-existing messages can be formulated ahead of time as part of a "Go-Kit" and disseminated without delays. Distribution mechanisms should be pre-identified to ensure materials are quickly distributed during emergencies or a public health event.[8] Influenza pandemic content material in this kit should be developed in collaboration with appropriate internal and external partners and should minimally include information to enhance those areas covered in the *Community Strategy for Pandemic Influenza Mitigation,* which provides detailed guidance for community settings, specifically on emergency shelters. The *Public Health Workbook to Define, Locate and Reach Special, Vulnerable, and At-Risk Populations in an Emergency* provides information that can support states and locals in targeting their outreach efforts to these populations during an emergency situation.

OMB DISCLAIMER

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

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